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ABSTRACT

This annotated bibliography is divided into four sections. Section 1 offers a nonannotated listing from two earlier bibliographies, compiled in 1970. Section 2 provides a list of references to specific computer-assisted counseling systems. Section 3 consists of publications which have surveyed the domain of computer-assisted counseling and compared various operational systems. The last section includes references which are more generally related to computer-assisted counseling. Whenever possible, an existing abstract or summary has been used and the appropriate source noted. (Author/JLL)

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Annotated Bibliography

on

COMPUTER-ASSISTED COUNSELING AND GUIDANCE

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NATIONAL INSTITUTE OF EDUCATION

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INTRODUCTION

The annotated bibliography presented here is divided into four sections. Section I offers a list which combines two earlier bibliographies, compiled in 1970, dealing with the same subject. The annotations have not been included, but both sources are listed at the beginning of the section for the convenience of the reader. A number of the references appeared in only one of the bibliographies and this has been noted. Moreover, not all of the references in both bibliographies were annotated. For example, Friesen's bibliography describes each project report of the Information System for Vocational Decisions while Bailey simply lists the title of each report after a brief description of the system itself. The reader is advised, therefore, to examine both bibliographies if seeking a particular reference.

Section II provides a list of references to specific computer-assisted counseling systems. For the most part these systems, although designed to be used in conjunction with other counseling services, are self-contained. The references are listed in alphabetical order and not grouped according to the particular system. I have, however, provided a summary at the end of the section in which the reader will find the name of currently operational systems and the reference numbers found in the body of the text.

Section III consists of publications which have surveyed the domain of computer-assisted counseling and compared various operational systems. Most of these articles attempt to summarize, in one way or another, specific efforts in the field.

The last section includes references which are more generally related to computer-assisted counseling. Two types of publications will be found here. The first describes computer support functions which facilitate counseling and guidance, but do not offer the more sophisticated, comprehensive and highly interactive systems described elsewhere. The second type includes general observations on the use of computers in counseling and guidance which are unrelated to specific systems.

Whenever possible an existing abstract or summary has been used and the appropriate source noted. A number of these references can be found in the ERIC Microprint Series, in which case the file number has been provided. The same is true of references to Psychological Abstracts (abbreviated PA in the text).

SECTION I

A Summary List of Two Earlier Annotated Bibliographies

The publications in this section can be found in one or both of the following sources:

Bailey, L. (Ed.). Facilitating career development. An annotated bibliography. Springfield, Illinois: Division of Vocational & Technical Education, 1970.

Friesen, J. Computer based systems in guidance and counseling. An annotated bibliography. Vancouver: British Columbia University, Faculty of Education, 1970. (ERIC-ED 046 006)

1-1 Barclay, J. Measuring the classroom social climate: Some problems and a computerized solution. (mimeo). University of Kentucky, undated. (Friesen only)

1-2 Bohn, M., & Super, D. The computer in counseling and guidance programs. Educational Technology, 1969, 9(3), 29-31.

1-3 Campbell, R. (Ed.). Systems under development for vocational guidance: A report of a research exchange conference. Columbus, Ohio: Ohio State University, 1966. (ERIC-ED 011 039) (Bailey only)

1-4 Christal, R. Inputs to vocational-technical education from occupational research. Washington, D. C.: American Personnel and Guidance Association, 1969. (ERIC-ED 032 571) (Bailey only)

1-5 Cogswell, J. The Systems approach as an heuristic method in educational development: An application to the counseling function. Santa Monica, California: Systems Development Corporation, 1962. (Friesen only)

1-6 Cogswell, J. An information retrieval system for counseling and guidance. In D. Bushnell (Ed.), Automation of school information systems. Washington, D. C.: National Education Association, 1964. (Friesen only)

1-7 Cogswell, J., & Estavan, D. Computer simulation of a counselor in student appraisal and in the educational planning interview. Santa Monica, California: Systems Development Corporation, 1965. (a) (Friesen only)

1-8 Cogswell, J., & Estavan, D. Explorations in computer-assisted counseling. Santa Monica, California: Systems Development Corporation, 1965. (b)

1-9 Cogswell, J., Estavan, D., Donahue, C., Jr., & Rosenquist, B. Exploratory study of information-processing procedures and computer-based technology in vocational counseling. Final report. Santa Monica, California: Systems Development Corporation, 1967. (ERIC-ED 017 710) (Bailey only)

1-10 Computerized Vocational Information System. A report on Project CVIS. Villa Park, Illinois: Willowbrook High School, Computerized Vocational Information System Project, 1969. (ERIC-ED 029 331) (Bailey only)

1-11 Cooley, W. Computer-measurement system for guidance. Harvard Educational Review, 1964, 34, 559-572. (Bailey only)

1-12 Cooley, W. Computer systems for guidance. Paper presented at the meeting of the American Educational Research Association, February, 1968. (Bailey only)

1-13 Estavan, D., Donahue, C., & Boyk, J. Implementation of vocational counseling system. Final report. Santa Monica, California: Systems Development Corporation, 1969. (Bailey only)

1-14 Flanagan, J. Functional education for the seventies. Phi Delta Kappan, 1967, 49, 27-32. (Bailey only)

1-15 Flanagan, J. Program for learning in accordance with needs (Project PLAN). Psychology in the Schools, 1969, 6(2), 133-136. (Bailey only)

1-16 Gallagher, J. (Ed.). Computer-based vocational guidance systems. Washington, D. C.: United States Government Printing Office, 1969. (ERIC-ED 034 408) (Bailey only)

1-17 Gamble, R. Clinical teaching with computer aids. The Bartlesville System. Stillwater, Oklahoma: Oklahoma State University, 1969. (ERIC-ED 033 376) (Bailey only)

1-18 Glaeser, G. A media system geared to closing the occupational information gap. School Shop, 1968, 27(8), 91-93. (Bailey only)

1-19 Goldman, L. Information and counseling: A dilema. Personnel and Guidance Journal, 1967, 46, 42-46. (Friesen only)

1-20 Harris, J. Computerization of vocational information. Vocational Guidance Quarterly, 1968, 17, 12-20.

1-21 Harris, J. Summary of a project for computerized vocational information being developed at Willowbrook High School, Villa Park, Illinois. Villa Park, Illinois: Willowbrook High School, undated. (ERIC-ED 019 840) (Bailey only)

1-22 Havens, R. Computer applications in guidance and counseling. Oshkosh, Wisconsin: Wisconsin State University, 1969. (ERIC-ED 035 925) (Friesen only)

1-23 Helm, C. Computer simulation techniques for research on guidance problems. Personnel and Guidance Journal, 1967, 46, 47-52. (Friesen only)

1-24 Impellitteri, J. The computer as an aid to instruction and guidance in the school. Ithaca, New York: State University of New York, 1967.(a) (ERIC-ED 020 529) (Bailey only)

1-25 Impellitteri, J. A computerized occupational information system. Vocational Guidance Quarterly, 1967, 15, 262-264. (b)

1-26 Impellitteri, J. Computer-assisted career exploration system. National Business Education Quarterly, 1968, 37, 47-51. (a) (Bailey only)

1-27 Impellitteri, J. Computer-Assisted Occupational Guidance (CAOG)--The development and evaluation of a pilot computer-assisted occupational guidance program. Final report and appendices A-E. University Park, Pennsylvania: Pennsylvania State University, Vocational Education Department, 1968. (b) (ERIC-ED 029 095)

1-28 Impellitteri, J. Exploration with a computer-assisted occupational guidance program. Washington, D.C.: American Educational Research Association, 1969. (a) (ERIC-ED 027 584) (Bailey only)

1-29 Impellitteri, J. Exploration with a computer-assisted occupational information system. Educational Technology, 1969, 9(3), 37-38. (b) (Bailey only)

1-30 Impellitteri, J. An heuristic approach to the exploration of self in the world of work. Paper presented at the annual meeting of the American Personnel and Guidance Association, Las Vegas, April 1969. (c) (Bailey only)

1-31 Jones, A. Implications of the rapidly developing computer technology for guidance counselors. Journal of Business Education, 1965, 40, 239-240. (Friesen only)

1-32 Katz, M. Can computers make guidance decisions for students? College Board Review, 1969, 72, 13-17. (Bailey only)

1-33 Loughary, J. Computers as substitute counselors: Some possibilities. Paper presented at the annual convention of the American Psychological Association, San Francisco, 1968. (ERIC-ED 022 228) (Friesen only)

1-34 Loughary, J., Friesen, D., & Hurst, R. Autocoun: A computer-based automated counseling simulation system. Personnel and Guidance Journal, 1966, 45, 6-15.

1-35 Loughary, J., & Tondow, M. Computers as substitute counselors. Educational Technology, 1969, 9, 33-36. (Friesen only)

1-36 MATCH: Career decision making by computer. Springfield, Illinois: Educational Planning Associates, Inc., 1964. (Bailey only)

1-37 McGrail, T. Mr. #/307. The School Counselor, 1967, 14, 234-236. (Bailey only)

1-38 Miller, J., & Sloan, N. Innovations in personnel services. Washington, D. C.: United Stated Office of Education, Bureau of Research, 1970. (ERIC-ED 036 660) (Friesen only)

1-39 Minor, F., Myers, R., & Super, D. Experimental computer-based educational and career exploration system. Personnel and Guidance Journal, 1969, 47, 564-569.

1-40 Mitchell, M. Do you have the time to counsel? (mimeo). Concord: Concord-Carlisle High School, Guidance Department, undated. (Friesen only)

1-41 Perrone, P., & Thrush, R. Vocational information processing systems: A survey. Vocational Guidance Quarterly, 1969, 17, 255-266.

1-42 Peterson, B. Guidance in decision-making for secondary schools. Palo Alto, California: Follett Systems, A Division of Follett Educational Corporation, 1968. (Bailey only)

1-43 Pierce, G. Data processing for guidance. Automated Education Letter, 1967, 2, 3-8. (a)

1-44 Pierce, G. Data processing for guidance and counseling. Detroit, Michigan: Automated Education Center, 1967. (b) (Friesen only)

1-45 Roach, A. Systems implementation in computer-based guidance. Paper presented at the annual convention of the American Personnel and Guidance Association, New Orleans, March 1970. (Bailey only)

1-46 Roberts, T., Richardson, W., & Forsberg, E. Total Guidance Information Support System (TGISS). Theoretical framework. The Bartlesville System. Stillwater, Oklahoma: Oklahoma State University, 1969. (ERIC-ED 029 339) (Bailey only)

1-47 Roberts, T. The uniqueness of the individual. Technical Memorandum #1. Stillwater, Oklahoma: Oklahoma State University, undated. (Bailey only)

1-48 Roberts, T. Problems associated with simulating a counselor's function in the student decision-making process. Technical Memorandum #2. Stillwater, Oklahoma: Oklahoma State University, undated. (Bailey only)

1-49 Roberts, T. A theoretical exemplar of system design, implementation and appraisal. Technical Memorandum #3. Stillwater, Oklahoma: Oklahoma State University, undated. (Bailey only)

1-50 Roberts, T. Software documentation, Part one. Stillwater, Oklahoma: Oklahoma State University, 1970. (Bailey only)

1-51 Rosser, P. What you should know about new computer based college selection services. Nation's Schools, 1969, 84(5), 47-50. (Bailey only)

1-52 Super, D. Using computers in guidance: An experiment in a secondary school. Canadian Counselor, 1970, 4(1), 11-21.

1-53 Tiedeman, D. The role of decision-making in information generation: An emerging new potential for guidance. New Era, 1968, 49, 224-229. (Friesen only)

1-54 Tondow, M., & Betts, M. Computer-based course selection and counseling. Journal of Educational Data Processing, 1967, 4, 216-241. (Bailey only)

1-55 Vriend, J. Counseling technology: A needed conceptualization. Educational Technology, 1969, 9, 9-14. (Friesen only)

1-56 Vriend, J. Report of the Harvard Invitational Conference on Computer Assisted Systems in Guidance and Education. Educational Technology, 1970, 10, 15-20. (Friesen only)

1-57 Walz, G., & Rich, J. The impact of imformation systems in counselor preparation and practice. Counselor Education and Supervision, 1967, 6, 275-284. (Friesen only)

1-58 Youst, D. The Rochester career guidance project. Educational Technology, 1969, 9(3), 39-41. (Bailey only)

1-60 Information System for Vocational Decisions (ISVD)

Final Report, May 31, 1970. (Friesen only)
Third Report: 1968-1969, October, 1969.
Second Annual Report: 1967-1968, September, 1968.
Annual Report: 1966-1967, September, 1967.

Technical Memoranda:

Ellis, A., & Wetherell, C. The computer and career decisions. Technical Memorandum No. 1.

Davis, R. Forecasting for computer aided career decisions: survey and methodology. Technical Memorandum No. 2.

Hutchinson, T. Level of aspiration and models applicable to the problem of choice of career. Technical Memorandum No. 3.

Wolff, L., Durstine, R., & Davis, C. Some workforce requirements implied by current manpower forecasts. Technical Memorandum No. 4.

Project Reports:

#1 Tiedeman, D. The organization and intention of a proposed data and educational system for vocational decision making. December 1965.

#2 Tiedeman, D. An information system for vocational decisions (ISVD): Cultivating the possibility for career through operations. December 1966.

#3 O'Hara, R. A theoretical foundation for the use of occupational information in guidance. December 1966.

#4 Durstine, R. Suggestions for treatment of information about occupations. December 1966.

#5 Tiedeman, D. Self esteem because of collegiate admission and education. March 1967.

#6 Durstine, R. Forecasting for computer aided career decisions: prospects and procedures. March 1967.

#7 Wilson, E. A task oriented course in decision making. March 1967.

#8 Fletcher, W. Toward a language of supervision. April 1967.

#9 Dudley, G., & Tiedeman, D. Recent developments and current prospects in occupational fact mediation. April 1967.

#10 Fletcher, W. A tentative career development curriculum and its implications for the patterning of supervisory responsibilities in the Information System for Vocational Decisions. May 1967.

#11 Ellis, A. A rudimentary demonstration for the Information System for Vocational Decisions. 1967.

#12 Tiedeman, D. The role of decision making in information generation: An emerging new potential in guidance. February 1968.

#13 Tiedeman, D. Economic, educational, and personal implications of implementing computerized guidance information systems. 1968.

#14 Ellis, A., Pincus, M., & Yee, P. Getting a guidance machine to understand English. 1968.

#15 Durstine, R. Datafiles for computerized vocational guidance: requirements, preparation, use. May 1968.

#16a Tiedeman, D. Can a machine develop a career? July 1968.

#16b Tiedeman, D. The Information System for Vocational Decisions: Description, subsequent development, and implications. July 1968.

#17 Ellis, A., & Tiedeman, D. Can a machine counsel? December 1968.

See also: Holtzman, W. (Ed.). Computer-assisted instruction, testing and guidance. New York: Harper and Row, 1970.

#18 Tiedeman, D. The cultivation of careers through guidance and vocational education. January 1969.

#19 Tiedeman, D. Can a machine admit an applicant to continuing education? January 1969.

#20 Field, F. On the concept of purpose. April 1969.

#21 Yee, P. A quasi-annotated sourcelist for occupational forecasting. August 1969.

#22 Aylmer, R., Jr. Mediating student-computer interaction: Access routines in an interactive guidance system. November 1969.

#23 Yee, P., & Seltzer, J. Description and use of the data files on military careers. November 1969.

#24 Durstine, R. A final report on forecasts and data files. November 1969.

#25 Roman, R. Implementation of a career decision game on a time shared computer: An exploration of its value in a simulated guidance environment. November 1969.

#26 Roman, R. Developing and implementing materials for computer assisted instruction. December 1969.

#27 Gannaway, M. Changing prospectives in education and self-corrective thinking. December 1969.

#28 Baruch, R. Computer-assisted systems in guidance and education: Report on an invitation conference for the practice and education of counselors. January 1970.

#29 Taylor, A. GLURP--Generalized Language for Understanding and Responding to People. January 1970.

#30 Yee, P. The construction and implementation of a data base. April 1970. (Friesen only)

#31 Roman, R. The Script Network: Present conditions and suggestions. March 1970. (Friesen only)

#32 O'Mahoney, T. The self concepts profiling technique: A procedure for exploration of self-concept systems. May 1970. (Friesen only)

#33 Roman, R. A manual for GLURP: A computer assisted instruction language. May 1970. (Friesen only)

#34 Scott, H. Program description HASM: Heirarchical Access Storage Management. May 1970. (Friesen only)

#35 Brewster, D. Program description DASM: Direct Access Storage Management. May 1970. (Friesen only)

#36 Yee, P., & Madoff, M. The Bigelow Junior High School Field Test. May 1970. (Friesen only)

SECTION II

Computer-Based Systems in Counseling and Guidance

2-1 Adams, L., & Anderson, W. Older job seekers and occupational information. Eugene, Oregon: University of Oregon, 1971.

Help Elderly Locate Positions (HELP), sponsored by the Emerald Empire Council on Aging and funded by the Administration on Aging, is a non-profit employment referral service for older workers, 55 and older, that has helped 1,206 elderly workers find jobs. A major area of involvement at HELP focused on exposing the older job seeker to the Occupational Information Access System (OIAS) and observing his reactions to the system. Upon completion of the OIAS questionnaire, which lists occupations to explore appropriate to aptitudes and interests, fifteen new registrants were asked to complete an evaluation of the process. The evaluation was concerned with their impressions of the system, opinions toward older people entering new occupations, their consideration of professions indicated suitable by the system, and their ratings of various sources of occupational information. Results indicated a favorable reaction of OIAS usage in a counseling context. (ERIC-ED 084 436)

2-2 Bohn, M., Lindeman, R., & Super, D. The ECES: Field trial and evaluation. Paper presented at the convention of the American Educational Research Association, Minneapolis, March 6, 1970.

The results of a field test of a computer-assisted counseling system, conducted in a suburban high school are presented. Three questions were asked: 1) Does the educational and career exploration system function adequately? 2) Does it affect students' vocational development? and 3) What reactions does it elicit from students, parents, counselors and teachers? The system, designed to provide the student with information concerning his educational and occupational choices for use in post high school plans, has three programs: 1) introduction and vocational orientation; 2) educational orientation; and 3) post high school educational search. The subjects were: 1) black and white; 2) male and female; and 3) college and non-college bound. An experimental group consisting of students who had used the system and a control group who who were not exposed to the system were randomly selected. Results indicate that the system experience leads to higher vocational maturity. Also, it was used equally by black and white students and by college and non-college bound students. Male students used the system more frequently than female students. Generally, the students were positive about their experience with the system, as were their parents. The counselors

agreed on the potential contributions of the system but urged the use of other occupational materials. (ERIC-ED 038 661)

2-3 Barnard, C. Counseling by computer. Educational Digest, 1972, 38(1), 19-22.

A brief article describing the Educational and Career Exploration System. (ECES).

2-4 Career Information System (CIS), keeping it going: Handbook for implementing the Career Information System. Eugene, Oregon: University of Oregon, 1975.

The Career Information System provides information about 228 occupational fields representing 95% of Oregon's labor market. Information is disseminated primarily through the use of computerized data. The Handbook, created to assist school and agency staff, describes the components of the system and how it can be utilized in the schools. A series of "recipes" are provided as suggestions for how CIS might be used.

2-5 Cassel, R., & Mehail, T. The Milwaukee computerized educational guidance system (EDGUYD). Education, 1973, 94(1), 38-43. (a)

The objective of this system is to help the student narrow choices in post-high school planning. After the student has reduced the number of educational alternatives, the computer asks him a series of questions from which an Educational Success Index is developed for each institutional alternative. Simple descriptive information regarding institutions is also available, as is information about scholarship opportunities.

Related Reference:

Cassel, R. EDGUYD Manual. Munster, Indiana: Psychometric Affiliates, 1975.

2-6 Cassel, R., & Mehail, T. The Milwaukee computerized vocational guidance system (VOCGUYD). Vocational Guidance Quarterly, 1973, 21(3), 206-213. (b)

VOCGUYD helps the individual to narrow career planning choices. Interests, test scores, and job information are used in the initial screening. These factors, along with the user's responses to a series of questions asked by the computer, generate a Career Success Index. This helps the user to match his personal attributes with those common to specific career alternatives.

Related References:

Cassel, R., & Mehail, T. The Milwaukee Computerized Vocational Guidance System (VOCGUYD). Sherwood, Wisconsin: Computerized Planning Systems, Inc., 1973.

Cassel, R. VOCGUYD Manual. Munster, Indiana: Psychometric Affiliates, 1975.

2-7 Chapman, W., Norris, L., & Katz, M. SIGI: Report of a pilot study under field conditions. Princeton: Educational Testing Service, 1973.

The report begins with a description of SIGI and the rationale behind its development. The authors then outline their procedures, the nature of the data gathered and the sample. An illustration of how SIGI is used is provided before the discussion of their results. They conclude that the experimental group was significantly higher on planning. Regarding the acquisition of occupational information and the formulation of occupational constructs, the experimental group was again higher than the control; however, the differences were not statistically significant. The final section of the report provides the reader with evaluative highlights: students reacted favorably; they understood the system and increased their awareness of values and the relationship of values to careers; SIGI was found to be adequate to their needs and clear in its directions; each Value was found to be important and relatively independent; all categories of occupational information were used; all available predictors were used; each student displayed an individual style of interaction and many identified a subsystem of particular value; the system was found to be flexible and accommodating to individual differences; and the mean terminal time was about three hours.

2-8 Cogswell, J., Donahue, R., Jr., Estavan, D., & Rosenquist, B. The design of a man-machine counseling system. A Professional Paper. Santa Monica, California: Systems Development Corporation, September 30, 1966.

Two projects of the design, development, implementation, and evaluation of a man-machine system for counseling in the Palo Alto and Los Angeles school districts are reported. The earlier Philco 2000 computer programs simulated a counselor's work in the educational planning interview by accepting inputs such as school grades, test scores, and biographical data. It analyzed data according to an inferred model of the counselor's decision-making rules, and printed out evaluative statements. An automated educational interview program now reviews student progress, collects comments from the student, reacts to student plans, and helps plan a high school course schedule. The current project, in the initial design phase, included a survey of counselor practices, selected an experimental field site, analyzed

counseling operations in the field site, and trained counselors in systems technology and lab development of limited software systems. A plan was formulated to computerize the major information-processing tasks in the counseling operation. The development, implementation, and evaluation phases will follow. A sample interview is included. This paper was presented at the American Psychological Association Convention, New York, New York, September 4, 1966. (ERIC-ED 014 781)

2-9 Drake, J., Friel, T., & Tyler, N. The ECES III Evaluation Report: An evaluation of the Educational and Career Exploration System. Genesee, Michigan: Genesee Intermediate School District, 1976.

The evaluation of the third version of the Educational and Career Exploration System (ECES) is described in this report. The results of the evaluation indicate, 1) that student users of the system demonstrated a significantly higher level of ability than did nonusers with regard to career knowledge, skills, attitudes and action; 2) that students using ECES III fared better than those using ECES II; 3) that the new ECES III testing instrument, the Mastery Test for Career Achievement Skills (MTCAS) is a valid indicator of the quantity and quality of skills acquired by the user; and 4) that the system is cost-effective. Tables illustrating these results are provided by the authors along with appendices of supporting materials.

2-10 Flanagan, J. The role of the computer in PLAN. Journal of Educational Data Processing, 1970, 7, 7-17.

The author describes the uses of a computer in Project PLAN. They included data processing, program development, progress reports, guidance and individual planning, implementation of personal and social development programs, and improvements of PLAN materials.

2-11 Franklin, P. Educational Component Project of the Career Information System. Career Education Digest, 1973, Dec., 5-7.

The educational components to be added to the occupational components of Oregon's Career Information System are described in this brief article. The steps necessary to develop and operationalize the educational components are: 1) component design; 2) information development; 3) field testing; and 4) project evaluation.

2-12 Frederick, F., & Roberts, T. Computer Assisted Counseling. Progress Report No. 1. Stillwater, Oklahoma: Oklahoma State University, 1967.

Present human counseling systems do not provide adequate access to various data required for the formulation of "intelligent" decisions on the part of the

student. A taxonomy of decision situations shows that nine of the twelve decision modes require the use of rapid access information retrieval system or computer. At least five of the decision modes also require interaction between the computer and the student. Such interactive decision modes are not being extensively studied in currently operating projects. Oklahoma State University's Project, planned for 1967-68, will have the capability of investigating any of the nine decision modes using a cluster of 10 student decisions. The project's theoretical concerns and level of system development are presented schematically. Actual development, trial, and implementation of the system are considered phases which require outside funding and public school participation. The proposal, as outlined, has been submitted to the United States Office of Education for consideration under Title III of the Elementary and Secondary Education Act. (ERIC-ED 017 016)

2-13 Friel, T., & Mallory, A. The development and redevelopment of ECES. Michigan Personnel and Guidance Journal, 1972, 4(1), 10-13.

This article reviews attempts to develop a successful computer-based guidance counseling program, the Education and Career Exploration System.

2-14 Friesen, D. The validation of an automated counseling system. Santa Monica, California: Systems Development Corporation, August 20, 1965.

The validity of a computer based counseling system was tested by comparison of its effectiveness with that of two counselors in: 1) pre- and post-interview pupil appraisal; 2) student educational decisions; 3) the completeness of educational plans. Interviewed by a model counselor and the counseling system were 20 ninth-graders. An equal number of students were interviewed by a second counselor and the counseling system. Interview results, student's sex, school and college ability test scores, socioeconomic level, and final tenth grade plans were collected for analysis. Data analysis methods are discussed. Results indicate that: 1) the development of a composite counseling model which would incorporate the best features of several counselors is possible; 2) the current automated counseling system, with the modifications discussed, has value as a computer-based pupil information system and is useful as an educational planning aid in conjunction with a counselor; and 3) most students would voluntarily use the automated counseling system if it were implemented into a school system. (ERIC-ED 016 262)

2-15 Gallo, J. Computer-assisted vocational counseling. Canadian Counselor, 1974, 8(3), 185-193.

A random sample of 6 males and 6 females from each of grades 10, 11, and 12 (N=36) used the Computer-Assisted Vocational Counseling System (CAVCS). Each student had four 25-minute terminal sessions over a 13 week period. Using the criterion of usage as evidenced in the number of jobs examined, an analysis of covariance with IQ score as covariate indicated that there were no significant differences in system usage across grade levels or between sexes within grade levels. Kruskal-Wallis analysis of variance testing did not reveal any significant differences in the amount of usage of the two modes of operation available. Evidence was found to indicate that a system such as CAVCS could be of benefit to senior high school students during their preliminary efforts in vocational or career exploration. (PA-Vol. 53, #04086)

2-16 Hallworth, H., Gallo, J., Herman, A., West, L., & Woodsworth, J. A computer assisted vocational counseling system. Alberta: Calgary University; Ottowa: Canadian Council for Research in Education, March 1970.

The development of a counseling system designed for a small computer, although limited in both scope and objectives, appears to be practicable and economical. Described herein is a program intended to perform some of the functions performed by a counselor. It is merely a tool to be used by the counselor, not a replacement for him. The program described applies to vocational counseling. Keeping data current is simplified by using a computer. The main object of such a program is to promote the decision making ability of the student by making information available to him, and by giving him the opportunity for vicarious experiences in making occupational choices. A total of three precise tasks in the design of this exploration system are indicated: 1) the development of interest categories; 2) the development of categories of educational aspirations; and 3) the classification of a given set of occupations in terms of the specified interests and educational categories. The system may then be used by students or counselors in any of three modes: 1) exploration; 2) index; or 3) guidance. (ERIC-ED 038 686)

2-17 Harris, J. Comments about learning for adult activities and roles through Willowbrook's Computerized Vocational Information System. (mimeo). DuPage County, Illinois: Willowbrook High School, 1968.

Unavailable for review.

2-18 Harris, J. Can Computers Counsel? Vocational Guidance Quarterly, 1970, 18(3), 162-164.

The author begins by citing the advancement of computer-assisted counseling systems and follows with a description of the Computerized Vocational Information System (CVIS). The CVIS vocational exploration package is an example of the application of on-line decision making. The computer uses the student's interests and educational aspirations to generate a list of occupations. The student then chooses those on which he wants additional information. The author also cites figures on student satisfaction.

Reprinted in:

Brown, D., & Srebalus, D. Selected readings in contemporary guidance. Dubuque, Iowa: Wm. C. Brown, 1973.

2-19 Harris, J. Analysis of the effects of a computer-based vocational information system on selected aspects of vocational planning. Unpublished doctoral dissertation, Northern Illinois University, 1972.

This study measured the effects of the use of the Computerized Vocational Information System (CVIS) on aspects of vocational planning and vocational maturity of high school sophomores. The following conclusions were drawn: 1) Use of the CVIS system does not significantly increase the number of occupations which students view as personal options at the sophomore level; 2) Use of the system does not increase the degree of congruence between stated educational-vocational aspiration level and objective data about grades and measured ability at the sophomore level; 3) Use of the CVIS system does significantly increase the accuracy and range of information which students possess about their chosen occupations; 4) Use of the CVIS system does significantly increase vocational maturity, specifically awareness of need to plan and knowledge of resources for exploration.

2-20 Harris, J. Computerized Vocational Information System (CVIS): Evaluation manual. A futuristic concept of vocational and educational decision-making. CVIS Consortium, May 1974.

Designed to assist Computerized Vocational Information System (CVIS) users in evaluating projects in local secondary school sites, the handbook provides users with a variety of variables or viewpoints from which to assist the CVIS system. Four different approaches to CVIS evaluation are presented: the analysis of use patterns; the reactions of users and nonusers to the system; the effect of use on students' vocational planning; and the cost-effectiveness of the system. Users might be analyzed by: sex, grade level, quartile by rank and/or test information, post high school plans, and reasons for use. Use patterns can be analyzed by specific subsystem, by terminal, and by type of user (student, counselor, administrator, teacher). Approx-

imately 80 pages of questionnaires (student, counselor, teacher, and parent) are included as examples of the types of questions which might be asked. Suggestions for measuring changes in vocational maturity and student exploratory behavior are offered. The Occupational Plans Questionnaire has been included to realize the crystallization of student vocational plans and the Vocational Plans Questionnaire to measure change in occupational knowledge. The concluding section is a 30-page cost justification guide by IBM Corporation (cost analysis of CVIS operation at Willowbrook High School, Illinois). (ERIC-ED 098 361)

2-21 James, E., & Smith, J. Traditional versus computer based vocational guidance and counseling systems: Implications for disadvantaged youth. ERIC Documents Reproduction Service, 1972.

Disadvantaged eleventh graders who used a computer based guidance system (ECES) and traditional counseling for two years in making career decisions were compared. Frequency of changes and certainty concerning choice, feeling of involvement in decision making, and a number of different jobs for which they would qualify are considered. A MANOVA analyzed the questionnaire responses. Counseling method, frequency of usage, and sex were the independent variables. Grade point average was a covariable. Significant differences generally favored males and traditional counseling. ECES more effectively furnished details concerning occupations. Traditional counseling assisted best with educational planning. Procedures for optimal combined usage of the methods appear indicated. (ERIC-ED 089 150)

2-22 Johnson, D., Youst, D., & Burnham, R. The application of educational media in a multi-medium support system for education and career planning. In Lifton, W. (Ed.). Education for tomorrow: the role of media, career development, and society. New York: Wiley & Sons, 1970.

The authors discuss research related to systems under development for vocational guidance, describing their own efforts with the Rochester Career Guidance Project.

2-23 Katz, M. System of Interactive Guidance and Information (SIGI). (xerox). Princeton, New Jersey: Educational Testing Service, 1968.

Unavailable for review.

2-24 Katz, M., Chapman, W., & Godwin, W. SIGI--A computer-based aid to career decision-making. EDUCOM Bulletin, Summer 1972.

Unavailable for review.

2-25 McKinlay, B. Occupational Information Access System: A model system of labor market information for use in counseling. Journal of Educational Data Processing, 1970, 7, 5.

Following a brief description of major research findings and a statement of general specifications for any occupational information delivery system, the author outlines the five operational components of the Oregon Occupational Information Access System. They include an "information generator" to suggest occupations and to refer users to occupational information and four "information files"--interview tapes, summary descriptions about occupations, selected bibliography noting published sources of occupational information, and a visit referral file which provides the opportunity for personal contact with a person knowledgeable about a particular occupation.

2-26 McKinlay, B. Validity and readability of the Occupational Information Access System "QUEST" Questionnaire. Eugene, Oregon: University of Oregon, 1971.

The purpose of the report was to examine the readability of the Occupational Information Access System (OIAS) QUEST questionnaire and the validity of the independent client use of the questionnaire as an information gathering device. Readability formulas rate the QUEST questionnaire "easy" or "fairly easy" and they rank the occupational descriptors "difficult" or "very difficult", as they do other occupational information materials. In field testing, however, users rated the system as easy or very easy to use with wording problems reported on only two percent of the QUEST questions answered; only one half of the percent of the questions were wording problems resulting in response errors. A readability and validity test in three Employment Service offices indicated that client self-reports of preferences and abilities concurred with counselor estimates about 80 percent of the time. There is some indication that client self-reports are as valid as counselor estimates, and other research summarized in this report indicates that self-reporting is as valid as testing. It was concluded that although self-reporting may not be relied upon completely for all clients, it is at least one of the appropriate bases for questionnaire response. (ERIC-ED 084 434)

2-27 McKinlay, B. Developing a Career Information System: Final Report. Eugene, Oregon: University of Oregon, 1974.

The report reviews three years of progress toward implementing the Career Information System (CIS), a statewide interagency consortium that provides current labor market and educational information in usable forms to students and clients and assists in the integration of such information into schools and social agencies in Oregon. The system's purpose is to improve career choices and training opportunities. CIS enhances the efforts of agencies and schools by synthesizing labor market and educational information;

developing and managing delivery systems; and consulting on the use of career information in counseling and instructional programs. CIS operates as a cooperative, controlled and supported by the agencies it serves. Essentially, the report is an effort to aid others who may attempt such statewide efforts. The response of students and clients and the results of pilot tests indicate the system's effectiveness with diverse populations. The seven chapters discuss the research, the CIS system, information development, the necessary features of a career information delivery system (analyzed through a review of the literature), several types of services, the impact on users, and financial considerations. Appended materials include: the constitution, user service agreement, standards, organizational sources, a library classification system, forms, and a glossary. (ERIC-ED 109 375)

2-28 McKinlay, B., & Adams, D. Evaluation of the Occupational Information Access System as used at Churchill High School. A project report. Eugene, Oregon: University of Oregon, 1971.

The Occupational Information Access System (OIAS) improves the accessibility of occupational labor market information for career planning. Its operation at Churchill High School is evaluated from several angles: the likes and dislikes of the users; the effect of OIAS on users knowledge of occupational information and on their career plans; why other students did not use it; its use in instruction; administrative considerations; its costs; and reactions of parents. Half the student body used it, mostly without assistance; repeat usage was common. Being "personally interested in looking for occupational information" was the most frequently given reason for use. The predominant reason why others did not use OIAS was a lack of knowledge of its availability. Most students used both the QUEST questionnaire and the occupational Descriptions, which they described as "fun to use", "easy to understand", and "accurate and up-to-date". OIAS helped students plan careers, and talk with their parents about their career futures. Parents had a good understanding of the System and strongly approved of its use. Direct operating costs total about $2 per student user. (ERIC-ED 084 435)

2-29 McKinlay, B., & Franklin, P. Oregon Career Information System: Educational Components Project. Midyear report. Eugene, Oregon: University of Oregon, 1974.

The Educational Components Project represents an effort to integrate information about post-secondary educational opportunities within existing occupational information in the Career Information System (CIS). The Project will encourage users to link school choice with career choice by operationalizing three new files of information: "Preparation File, which will include research-documented statements on how best to prepare for

entry level employment in the 224 occupations included in CIS; Program File, which will provide a narrative description of post-secondary educational programs and a list of schools which offer them in Oregon; and, the Institutional File, which will provide descriptive information on all two- and four-year colleges and nearly all proprietary schools in Oregon."

2-30 McKinlay, B. & Franklin, P. Education Components for a Career Information System. Final project report. Eugene, Oregon: University of Oregon, 1975.

This report evaluates the effectiveness of including information on post-secondary education opportunities in Oregon's Career Information System (CIS). Findings related to specific populations are discussed. The report demonstrates that CIS users found the information valuable. Another finding was the difficulty in compiling valid and reliable information about post-secondary educational institutions. The method by which occupational and educational information were linked is described. Additionally, a new target population was identified, young adults who may be out of school or unemployed.

2-31 Melhus, G., Hershenson, D., & Vermillion, M. Computer-assisted versus traditional vocational counseling with high and low readiness clients. Journal of Vocational Behavior, 1973, 3, 137-144.

This study tested Hershenson's hypothesis that different vocational counseling methods would be differentially effective for clients at different levels of readiness. The top 54 and bottom 54 high school sophomores from a class of 853 were selected on the basis of their Educational Development Series test scores. Half of each group (highs and lows) received individual counseling; the other half interacted with a computerized vocational information program (CVIS). It was predicted that high readiness subjects would change more with CVIS and lows would change more with counseling. Only the latter prediction was confirmed. The groups did not differ in satisfaction with their post-treatment vocational choices. Findings suggest that individual counseling be emphasized with low readiness clients when both options are available.
(Abstract from the Journal of Vocational Behavior)

Related Reference:

Melhus, G. Computer-assisted vocational choice compared with traditional vocational counseling. Unpublished doctoral dissertation, Illinois Institute of Technology, 1971.

2-32 Minor, F. A Computer-based Education and Career Exploration System. Yorktown Heights, New York: International Business Machines, May 1970.

The actual workings of the ECES are described. The functions of the system are divided into three general phases: 1) an occupational information bank for exploring occupations; 2) an educational information bank for exploring training programs and educational areas of study; and 3) a junior/senior college information bank for isolating the names of appropriate post-high school institutions. The multiple steps for the student, in his interaction with the computer, are spelled out. The flexibility of the system is stressed as being dependent on the student's immediate needs and his judged level of vocational maturity. The system was field tested in Montclair High School in New Jersey. On the basis of the findings, revisions were made which will be tested in the Genesee Intermediate School District in Flint, Michigan. The paper concludes with a brief assessment of the advantages which ECES can provide to the student, the counselor, and the school. (ERIC-ED 041 305)

Related Reference:

Minor, F. An experimental computer-based educational and occupational orientation system for counseling. Paper presented at the XVI International Congress of Applied Psychology, Amsterdam, August 1968.

2-33 Myers, R., Lindeman, R., Forest, D., & Super, D. Preliminary Report: Assessment of the first year of use of the ECES in secondary schools in Genesee County, Michigan. New York: Teachers College, Columbia University, 1971.

This report begins by giving the rationale of the plan for evaluating the use of the Education and Career Exploration System (ECES). The following objectives and criteria were identified as appropriate for the subject population: planfulness and time perspective; having and seeking needed information; knowing the kinds of information needed. These criteria were used to measure vocational maturity. The objectives of the study were to examine the effects of ECES on vocational behavior; to examine its effects on counselor attitudes; to examine the attitude of student users and their parents; to determine the optimum usage pattern for the second and third years of field trial; to refine the evaluation objectives, methods, instruments and sampling procedures. The results of the study were as follows: most students used ECES for four hours; on initial use, two-thirds explored occupations and one third explored college majors, while on the second use, 94% explored occupations and 70% explored majors; student reactions were overwhelmingly favorable; parents and users were all positive about the experience when a follow-up survey was taken. Regarding vocational behavior, users improved more than nonusers on awareness of potential occupational resources available and the quality

of resources used. Differences related to sex, race, and geographical background are noted. There was no difference in increases in student exploratory activities among various ECES users. All counselors generally approved of the system and there was some change in counselor activities observed. The report concluded with recommendations for the second phase of the field trial and evaluation.

Related Reference:

Lindeman, R., Forest, D., Myers, R., & Bohn, M. The Education and Career Exploration System: First year report of a county-wide field trial and evaluation. Paper presented at the annual meeting of the American Educational Research Association, Chicago, April 1972.

2-34 Myers, R., Thompson, A., Lindeman, R., Super, D., Patrick, T., & Friel, T. ECES: Report of a two year field trial. New York: Teachers College, Columbia University, 1972.

The authors begin with an explanation of the rationale behind the project and a description of the Montclair, New Jersey, field trial. A summary of the first year field trial is presented and the current assessment plan is described. For this study a skill acquisition program, the Decision Making Syllabus (DMS), was used in conjunction with ECES. The results of the trial are reported. Regarding vocational maturity, as measured by the Career Development Inventory, the experimental group showed more improvement on Planning Orientation and Resources for Exploration than the control group. There was no difference on Information and Decision Making. Differences related to sex of the user and time spent at the terminal are noted. Additionally, students using the Decision Making Syllabus gained significantly in both career decision-making skills, career planning attitudes and planning insight. The results led the authors to conclude "that tenth grade students can be sytematically trained to score at and above the level of untrained junior college students in the areas of career decision-making skills."

Related Reference:

Myers, R., Lindeman, R., Thompson, A., & Patrick, T. Effects of educational and career exploration system on vocational maturity. Journal of Vocational Behavior, 1975, 6, 245-254.

2-35 Nation's Schools and Colleges, 1974, 1(2), 57-58. Terminal Careers.

This article descirbes the Rhode Island Junior College's Computerized Career Information Service. The system provides the user with information on occupations, job openings, other colleges, and scholarships. There are

nine computer scripts: occupations, four-year colleges, RIJC itself, local technical and specialized schools, local apprenticeships, local jobs, financial aid, military information and child care centers. The computer is also capable of giving interest and aptitude quizzes which can be scored instantaneously. The user can ask for specific jobs or occupational clusters, or can call up jobs for which he is qualified.

2-36 Pierce, R. Careers on the computer. American Education, 1972, 8(7), 31-35.

This article describes the Oregon Information Access System (OIAS) which is capable of retrieving occupational information (e.g., tasks, environment, work week, salary, etc.) for student users. There are five parts to the system: questionnaire, occupational descriptions, bibliographies, cassette tapes and off-line interviews with local people.

2-37 Pilato, G., & Myers, R. Effects of computer-mediated vocational guidance procedures: Accuracy of self-knowledge. Journal of Vocational Behavior, 1973, 3, 167-174.

To assess the effectiveness of vocational guidance procedures proposed for inclusion in a computer-based vocational exploration system, 128 eleventh grade male subjects were randomly assigned to three experimental groups and a control group. One group was given a computer-generated accuracy of self-knowledge feedback, another group was taught an occupational classification scheme, and a third group experienced both. Measures of self-knowledge showed increased accuracy about intelligence, but not about interests, after treatments that included the feedback. Increases were largely due to changes in subjects who originally underestimated their intelligence. A delayed posttest indicated that the increases did not persist.
(Abstract from the Journal of Vocational Behavior)

2-38 Pilato, G., & Myers, R. The effects of computer-mediated vocational guidance procedures on the appropriateness of vocation preference. Journal of Vocational Behavior, 1975, 6, 61-72.

To assess the effectiveness of vocational guidance procedures proposed for inclusion in a computer-based vocational exploration system, 139 eleventh grade male subjects were randonly assigned to three experimental groups and a control group. One group was given a computer-generated accuracy of self-knowledge feedback, another group was taught an occupational classification scheme, and a third group experienced both. Utilizing a method of explicit comparison between student's measured characteristics and the measured characteristics of occupational norm groups, the results showed students in the groups receiving feedback increased the appropriateness of the occupational level of their first occupational choice. In addition,

students in the combined treatment group increased in the appropriateness of the level of their total occupational preferences. A delayed posttest indicated that these increases persisted.
(Abstract from the Journal of Vocational Behavior)

2-39 Price, D. A computerized educational and vocational counseling program. Canadian Counselor, 1971, 5(2), 115-122.

This article describes a computerized program which includes the following features: 1) a vocational program which helps a student evaluate his ability and suggests possible work areas; 2) an educational program which helps students plan a course of study; and 3) a remedial program which corrects defects in the student's previous training. (ERIC-ED 038 980)

2-40 Price, G., & Johnson, R. Computer-assisted course selection. Journal of Counseling Psychology, 1973, 20, 327-331.

This study compared the effectiveness of a computer-based counseling system with a counselor-based system in helping students explore and select high school courses. Ninety-six students were randomly assigned to computer-assisted or counselor-assisted selection procedures. The following four criterion measures were used: a) a test of students' understanding of information relevant to course selection, b) students' self-reported reactions to the experience with the computer or counselor, c) evaluations of completed student programs by five counselors, and d) the extent to which students subsequently requested course changes. A six-way repeated measures analysis of variance design was used to test the results. No differences were found between counselor-assisted and computer-assisted course selection.
(Abstract from the Journal of counseling Psychology)

Related References:

Price, G. Computerized course exploration and selection--a comparison of the effectiveness of a computer-based system with a counselor-based system. Paper presented at the convention of the American Personnel and Guidance Association, Atlantic City, April 4-8, 1971.

Price, G. A comparison of computer and counselor effectiveness in assisting high school students explore and select college courses. Unpublished doctoral dissertation, Michigan State University, 1971.

2-41 Price, G. Counselor and computer effectiveness in helping students select courses. Journal of Counseling Psychology, 1974, 21(5), 351-354.

A follow-up study compared the effectiveness of a computer-based counseling system with a counselor-based system in helping students explore and select high school courses. No significant differences were found in grades received and number of courses changed between students using counselor-assisted and computer-assisted course selection procedures. (Abstract from the Journal of Counseling Psychology)

2-42 Rhodes, W. Learning what the world of work is all about. School Management, 1974, 18(7), 28-30.

This article describes the Career Exploration Project, an experimental program based in southeastern Pennsylvania which provides students with an opportunity to explore careers. There are four parts to the program: 1) evaluation and self-analysis; 2) a computer-assisted job search; 3) community work experience; and 4) classroom discussion. The computer is used primarily to motivate exploration.

2-43 Roberts, T., Richardson, W., Forsberg, E., & Smith, G. The Bartlesville System: TGISS Software Documentation. Stillwater, Oklahoma: Oklahoma State University, January 1970.

TGISS (Total Guidance Information Suspport System) is an information storage and retrieval system specifically designed to meet the needs and requirements of a counselor in the Bartlesville Public School environment. The system, which is a combination of man/machine capabilities, includes the hardware and software necessary to extend the counselor's capabilities by providing ready access to student information under secure conditions. The functional requirement specifications for the basic retrieval system of TGISS are stated in this report along with a general description of the system including remote terminals, central site, and data base design. Various software components are explained. The external design requirements and capabilities of the user's command language are specified, and descriptions of provisions for data base security and television displays are included. (ERIC-ED 066 044)

2-44 Ross, L. The effectiveness of two systems for delivering occupational information: A comparative analysis. Masters thesis, University of Oregon, 1971.

The effectiveness of the computer-based Occupational Information Access System (OIAS) is compared with the Lane Community College Counseling Center in terms of delivering occupational information. After describing

his procedures and findings, the author concludes that "OIAS is a useful tool for counselors and students because of its general ability to store and deliver information more efficiently and much less expensively than counselors."

2-45 Thompson, A., Lindeman, R., Clack, S., & Bohn, M. The Educational and Career Exploration System: Field trial and evaluation in Montclair High School. (mimeo). New York: Teachers College, Columbia University, 1970.

This report of the initial Educational and Career Exploration System (ECES) field trial begins with a description of the system itself, followed by discussion of methods and procedures, results and conclusions. Although the differences between experimental and control groups were minimal with respect to vocational development, other valuable results emerged from the trial. The authors conclude that ECES is useful, especially for students in the early years of high school. The system contributed to increased occupational information, and increased understanding of the relationship between school subjects and occupational possibilities, and finally increased understanding of strengths and weaknesses in relation to educational and occupational goals.

2-46 Vocational Guidance Quarterly, 1971, 20(1), 61-62. Interactive computer system will help students make career decisions.

Described very briefly is the progress to date in the development of the Educational Testing Service's System for Interactive Guidance and Information (SIGI).

2-47 Weick, J. Occupational information for employment service counseling: An evaluation of Occupational Information Access System pilot use in three Portland Employment Division offices. Eugene, Oregon: University of Oregon, 1972.

This report was carried out to determine the effectiveness of Occupational Information Access System (OIAS) usage in the counseling units of three employment division offices in Portland, Oregon. Two versions of OIAS, a computer-linked version and a manual card-sort version, were compared with the traditional mode where counselors deliver occupational information during the counseling process. Research findings based on the experience of seventeen counselors and 267 clients, both disadvantaged and nondisadvantaged, found both forms of OIAS to be a more effective means of delivering occupational information for use in the career decision-making process. The vast majority of clients indicated that they would use OIAS again if they needed information in the future, and that they would like to see OIAS kept in the employment offices where they had used it. Client reactions to OIAS

and the findings of the study are discussed in detail. The appendix includes a description of the methodology used together with copies of forms used for evaluation interviews. (ERIC-ED 091 589)

REFERENCE SUMMARY

Currently Operational Systems

Computerized Vocational Information System (CVIS)

1-10, 1-20, 1-21, 2-17, 2-18, 2-19, 2-20, 2-31, 2-40, 2-41.

Educational and Career Exploration System (ECES)

1-39, 2-2, 2-13, 2-21, 2-32, 2-33, 2-34, 2-37, 2-38, 2-45.

Occupational Information Access System (OIAS)
(This is the computer-based occupational information retrieval component of the Career Information System.)

2-1, 2-4, 2-11, 2-25, 2-26, 2-27, 2-28, 2-29, 2-30, 2-36, 2-44, 2-47.

System for Interactive Guidance and Information (SIGI)

2-7, 2-23, 2-24, 2-46.

SECTION III

Surveys of Computer-Based Systems in Counseling and Guidance

3-1 American Institutes for Research. Career education and the technology of career development. The Proceedings of the Eighth Invitational Conference on Systems under Construction in Career Education and Development, October 7-8, 1971.

One section of this report is devoted to a review of computer-assisted counseling systems. The following systems are reviewed: 1) Computerized Vocational Information System (CVIS); 2) Educational and Career Exploration System (ECES); 3) System for Interactive Guidance and Information (SIGI); and 4) University of Wisconsin (Milwaukee) Computerized Guidance Information Programs, including DEDEV--Decision Development, EDGUYD--Educational Guidance, VOCGUYD--Vocational Guidance, PLUDRUG--Drug Abuse Information, CASCON--Computer-Assisted Counseling, CASTY--Case Study Analysis.

3-2 Cooley, W., & Hummel, R. Systems approach in guidance. Review of Educational Research, 1969, 39(2), 251-262.

This article includes: 1) an overview of the systems approach and how it differs in perspective from traditional research; 2) a review of three systems approaches in guidance; 3) a brief summary of other efforts in this general area; and 4) projections for the future. Three computer-assisted counseling systems are described: The Systems Development Corporation's Vocational Counseling System: Autocoun; The Information System for Vocational Decisions (ISVD); and the International Business Machines' Guidance Counseling Support System.

3-3 Harris, J. Toward guidelines for computer involvement in guidance. Commission Report. Washington, D. C.: National Vocational Guidance Association, 1971.

The author defines computer-assisted guidance systems as systems which use the computer to contribute to personal, educational, vocational, and social decision-making. After outlining a series of pertinent issues relating to 1) the counselee; 2) the counselor; 3) the computer program (software); and 4) the information stored in computer storage, she concludes that computers will have an increasing utility and effectiveness when applied to counseling. There are, however, potential dangers; either rejecting that which is

useful without analysis or accepting that which is not useful because it may be "fashionable". A set of questions is recommended for consideration by those who are deciding whether or not to utilize a system of this type. In viewing guidance as a system, the author underscores the fact that the computer is not a replacement for the counselor.

3-4 Harris, J. Tested practices: Computer-assisted guidance systems. Washington, D. C.: National Vocational Guidance Association, 1973.

After describing the types of computer-assisted guidance systems which are operational, the author summarizes research findings from the Computerized Vocational Information System and the Educational and Career Exploration System. This is followed, first, by a helpful section on how to decide whether or not your guidance department needs a system, and, finally, by guidelines for evaluation and development.

3-5 Harris, J. The computer: Guidance tool of the future. Journal of Counseling Psychology, 1974, 21(4), 331-339.

The use of the computer in the field of guidance is a relatively new phenomenon and is based on the capability of the computer to be programmed to perform certain guidance tasks. Within the past 10 years, approximately 30 computer-based guidance information systems have been developed. These have been divided into four distinct types by the National Vocational Guidance Association's Commission on Computer-Assisted Guidance. Evaluation of operational computer-based systems indicated high user acceptance, ability to perform certain tasks as well as counselors, the effect of increase in vocational maturity, and cost feasibility. These data are used as a basis for predicting that the computer will be a powerful guidance tool of the future. (Abstract from the Journal of Counseling Psychology)

See also:

Coffin, W. (Ed.). Frontiers of educational measurement and information systems. Boston: Houghton Mifflin Co., 1973.

3-6 Harris, J. Sex bias and computer-based guidance systems. In E. Diamond, (Ed.). Issues of sex bias and sex fairness in career interest measurement. Washington, D. C.: Department of Health Education and Welfare, National Institute of Health, Career Education Program, Spring, 1975.

All materials which could be acquired from the five leading computer-based guidance systems were read and evaluated for sex bias or fairness. Such analysis was done within the framework of six categories: interactive dialogue, data files, the computer program, on- and off-line interest inventories, audio-visual support materials, and printed support materials.

Relatively little was found which indicates serious sex bias. The descriptive content of the data files seems to have high potential for problems. The degree of sex bias or fairness which interest inventories have will have serious implications for the scope of the student's vocational exploration in systems which make use of such instruments to suggest or guide exploration. Supporting visual materials or community visitation programs can also be a source of subtle sex bias. (ERIC-ED 095 363)

3-7 Harris, J., & Tiedeman, D. The computer and guidance in the United States: Past, present, and a possible future. Paper presented at the Symposium on Computer Based Counseling, 18th Congress of the International Association of Applied Psychology, Montreal, July 31, 1974.

In presenting the state of the art of the computer in guidance programs, it is maintained that there are many potential uses for computers in career decision-making. Four types of computer-involved guidance systems were in use in 1970: indirect inquiry systems, direct inquiry systems without system monitoring, direct inquiry systems with system monitoring, and direct inquiry systems with system and personal monitoring. Of the 25 to 30 systems existing then, only five remain. They are direct inquiry systems, and all but one are directed to secondary school students. They are cost feasible, use standard terminal equipment, and specialize in providing career decision-making information, retrieval, storing, and synthesis. DISCOVER is the newest computer-based guidance system under development in the United States. It differs from other systems in objectives, functions, and population. Further developments in the field are anticipated involving self-initiated, self-directing, self-corrective learning, based on the theory that only each man can help himself. (ERIC-ED 095 372)

3-8 Jones, B. Development and evaluation of a comprehensive career guidance system (CCGS). Final report. Palo Alto, California: American Institute for Research in the Behavioral Sciences, January 1971.

The objective of CCGS was to develop and evaluate guidance-oriented, behavioral objectives, each keyed to appropriate instructional, counseling and evaluational materials and procedures available for student, parent, counselor and teacher use. The author discusses computers in terms of their general application to career guidance and educational opportunities. He describes two approaches to the use of computers in guidance, computer-assisted (direct intervention) and computer-supported, citing examples of both types. (ERIC-ED 055 310)

Related Reference:

Jones, G., Ganschow, L., Helliwell, C., Wolff, J., & Dayton, C. Manual for developing career guidance programs. Irvine, California: Educational Properties, Inc., 1974.

3-9 Jones, B., Harris-Bowlsbey, J., & Tiedeman, D. Computer technology in counseling. Manuscript submitted for publication, undated.

The authors begin by describing the potential value of using computers in career decision-making and as part of a support system for the counselor. With not more than five computer-involved counseling systems remaining in the field at this time, though 25 to 30 underwent development during the 1960's and early 1970's, the authors try to identify the factors which influence system survival. Concluding that there is little rigorous evidence on the costs and impact of computerized counseling systems, they call for the gathering of more extensive data on the costs and the impact of computer-involved systems. The only study they found which attempted to gather evidence on impact and cost was done by Ross (1971) who compared the computerized Occupational Information Access System with the regular counseling staff. Preliminary evaluations of CVIS and ECES are also summarized. Future trends in the field are illustrated by describing Project DISCOVER which is currently under development. The authors offer three recommendations for making computerized counseling systems feasible; first, regionalized or nationalized rather than localized approaches to the provision of facts and information; second, integrating one or more of the four kinds of computerized counseling systems described here with either computer-assisted or computer-monitored operations or both; and third, combining career guidance and administrative uses of school computer facilities.

3-10 Kroll, A. Computer-based systems for career guidance and information: A status report. Focus on Guidance, 1973, 5, 1-15.

This article reviews the status of four systems: Computerized Vocational Information System (CVIS), Occupational Information Access System (OIAS), Educational and Career Exploration System (ECES), and System for Interactive Guidance and Information (SIGI), all of which the author describes as "interactive". After a brief description of each system, the following issues are addressed: transportability of systems, telecommunications, performance considerations, data base maintenance, and system effectiveness. Further investigations, he suggests, should focus on: 1) determining the type of information students want and need to make informed career plans; 2) identifying those factors whch contribute most to individual satisfaction with their educational and occupational choices; 3) studying student behavior in career planning and the effects of improved information access on that behavior; and 4) comparing the differential effects of alternative information

delivery systems or the relative impact that alternative media have on students. After discussing the economic and political implications of implementing a system and the effects of the systems on counselors, he concludes with a series of recommendations for interested counselors.

3-11 Loughary, J. The computer is in! Personnel and Guidance Journal, 1970, 49(3), 185-191.

This article describes present and future computer-based systems used in counseling and guidance, and provides several descriptive references. The article describes five types of systems, some of which replace and go beyond certain current counseling functions. (ERIC-EJ 027 014)

Reprinted in:

Brown, D., & Srebalus, D. Selected readings in contemporary guidance. Dubuque, Iowa: Wm. C. Brown, 1973.

3-12 Minor, F. (Ed.). Third Symposium for Systems Under Development for Vocational Guidance. Yorktown Heights, New York: International Business Machines, September 1967.

This report begins by outlining the need for systems to help the counselor, particularly in career development. It suggests that automated systems for helping students and counselors may be implemented, mentioning specifically the use of the computer-based counseling systems. The following computer-based projects are described: 1) Guidance Counseling Support System--a computer-based learning environment to be used as part of vocational guidance services; 2) Exploratory Study of Information-Processing Procedures and Computer-Based Technology in Vocational Counseling--a man-machine counseling system for secondary school counseling; 3) Harvard-NEEDS-Newton Information System for Vocational Decisions--an information system to improve career decision-making; 4) Automated Developmental Counseling System--a man-machine systems approach to the guidance and counseling function; 5) Development and Evaluation of a Pilot Computer-Assisted Occupational Guidance Program--a project to develop and field test a prototype computer-based system of providing occupational information to ninth grade boys; 6) The Development of Computer-Assisted Guidance and Counseling Systems in Oklahoma--to develop and appraise computer applications in guidance and counseling; and 7) Computer-Based Course Selection Program--to design and implement a man-machine counseling system for course selection and to provide vocational information.

3-13 Roberts, T., & Frederick, F. Computer-assisted counseling. Progress report No. 1. Stillwater, Oklahoma: Oklahoma State University, 1967.

This report offers a brief examination of operational computer-assisted counseling systems. This leads to a description of the development of their own system at Oklahoma State University in which the authors outline, briefly, the anticipated developmental phases of their project.

3-14 Super, D. (Ed.). Computer-assisted counseling. New York: Teachers College Press, 1970. (a)

A series of articles describing developments in computer-assisted counseling is presented. Specific systems are described along with discussion of more general issues related to present status and future considerations.

3-15 Super, D. Of Tiedeman, Ellis, and machines which become media when given the right messages. In W. Holtzman, Computer-based instruction, learning, tests and guidance. New York: Harper and Row, 1970. (b)

The author discusses the Information System for Vocational Decisions developed by David Tiedeman and his colleagues. He suggests modifications or additions which he believes are necessary or desirable in order to improve the system.

3-16 Super, D. Computer, counselor and client: Comments on the paper by Dr. Harris. In W. Coffman, (Ed.). Frontiers of educational measurement and information systems. Boston: Houghton Mifflin, 1973.

The paper to which the author is responding describes the current state of computer-assisted counseling systems. Agreeing in general, Super is more optimistic and points out additional uses. The relative merits of empirically derived models and of systems analysis are considered.

SECTION IV

Computer-Support Functions in Counseling and Guidance and General Observations on Computers in Counseling and Guidance

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4-1 American Educational Research Association. Readings in computer-based guidance. Papers presented at the American Educational Research Association Convention, Minneapolis, March 2-6, 1970, and the American Personnel and Guidance Association Convention, New Orleans, March 1970.

The document contains six papers which deal with the need for change in guidance and counseling due to the overwhelming amount of data which is insufficiently processed by conventional manual systems. Included in these papers are discussions on when these changes should occur and the nature of their alterations. The reports consider some of the ways in which the computer can be successfully used to provide needed support. These areas include: 1) information storage and retrieval; 2) diagnosis; 3) instructional gaming; and 4) synthetic confrontation therapy. The following topics are covered: 1) computer-based gaming, a systems approach to vocational instruction; 2) synthetic confrontation therapy; 3) diagnosis and prediction; 4) a survey of two information languages for counselor application; 5) gaming for vocational awareness; and 6) computer diagnostics. (ERIC-ED 042 223)

4-2 American Personnel and Guidance Association. Implications of new technology for counselor education. Washington, D. C.: Association for Counselor Education and Supervision, March 1969.

This report includes papers reviewing new technology and methodology currently being used in counselor education. It is the result of a survey of innovations in counseling or education programs in all geographic regions. It includes an overview of computer information systems as they relate to guidance and counseling. (ERIC-ED 038 898)

4-3 Annas, P. Proceedings of the New England Guidance Conferences. New England Educational Assessment Project, November 1968.

Included is a paper titled "Overview to Use of Computers".

See also: ERIC-ED 033 611

4-4 Association for Educational Data Systems. Layman's guide to the use of computers. Washington, D. C., 1971.

In this introductory pamphlet, computers are defined, and the main components of a computer system (input, storage or memory, control, arithmetic logic, and output), language of the computer and use of computers in education are discussed. The latter section considers computer science, computer-assisted instruction, programmed instruction, educational games, and use of computers in counseling. Examples of programs in each are given. A glossary is provided. The style is nontechnical and the treatment is brief. (ERIC-ED 071 385)

4-5 Austin, G., & Ryan, B. Computer-assisted guidance in predicting probable admission to institutions of higher education. Journal of Educational Data Processing, 1971, 8(4), 18-23.

The authors' objective was to create a reliable predictive data source for use by high school students for admission to post high school academic institutions in New Hampshire. After identifying factors which bear on admission, they developed a "School Potential Index", incorporating the use of a computer for predicting a student's chances of admission to three colleges in New Hampshire.

4-6 Boynton, R. New models and techniques in career guidance. Pittsburgh, Pennsylvania: Pittsburgh University, March 11, 1966.

A model for a career guidance system that appears to effect positive change for students, schools, and the community is presented. There are four phases to the model, one for each year the student is in high school. The student's skills, aptitudes, interests, intelligence, and achievements are determined at initial fact gathering sessions. This information is stored in a computer. The student may obtain information from the computer about grades, courses taken and college acceptance. The counselor receives a copy of all such sessions. Students are assigned by the computer to discussion groups which focus on the selection of occupational objectives. (ERIC-ED 012 936)

4-7 Brown, J., & MacDougall, M. Computerized simulated games: A socialization tool for child guidance. Paper presented at the convention of the American Personnel and Guidance Association, Atlantic City, April 4-8, 1971.

The computer is used in the game simulation. The authors believe that the system can: help students learn self-perception from classmates; help

unlearn self-defeating behaviors; help learn self-acceptance, acceptance of others, and achieve a concept of interdependence. Implications for elementary school counseling are discussed.

4-8 Bolton, B. Improving the prediction of rehabilitation outcomes by computer generated pattern analysis. Rehabilitation Research and Practice Review, 1972, 3(2), 51-58.

This article presents a comparison between the stepwise multiple regression technique and a computer-generated pattern analytic technique. The data sample consisted of 411 rehabilitation clients, of whom 51% were successfully placed in jobs. Results of the two statistical procedures favor the computer technique as it explained almost twice as much criterion variance and did so in a form more useful to rehabilitation personnel. The technique was better in enabling counselors to assign clients to treatment programs which would be most likely to assist them in becoming employed.
(PA- Vol. 51, #00068)

4-9 Bard, B. Counselors, computers and college selection. School Management, 1969, 13(9), 44-51.

The difficulty of providing guidance for high school students in their efforts to select an appropriate college is discussed. The author emphasizes the difficulty faced by the counselor in keeping up to date and processing all of the necessary information. He cites the importance of the computer in such efforts, particularly for the purposes of matching student with college.

4-10 Case, L. Interactive computer grade counseling. American Journal of Physics, 1973, 41(8), 1019-1020.

This article describes the use of a basic language program to calculate and report grades, especially to counseling students about their progress. It indicates that students' weaknesses or strengths are determinable through estimates of their future grade performance. (ERIC-EJ 080 803)

4-11 Cassel, R., & Blum, L. Computer Assist Counseling (COASCON) for the prevention of delinquent behavior among teenagers and youth. Sociology & Social Research, 1969, 54(1), 72-79.

The authors discuss delinquency as the unsatisfactory development of an ego-ideal compatible with the culture. It is suggested that at the beginning of junior high school, a comprehensive assessment be made of all teenagers with Ego Ideal and Conscience Development Tests (EICDTs). The content and development of the EICDTs are described. Research with

Computer Assist Counseling (COASCON) is reviewed and the success of this approach examined in terms of improved EICDTs scores. (PA- Vol. 45, #08547)

Related References:

Cassel, R. Computer assist counseling (COASCON)--a basic essential in youth correction programs. Journal of Correctional Education, 1969, 21(2), 21-23.

Cassel, R. Computer assist counseling (COASCON). Development and experiment in college teaching. Report No. 6. Chula Vista, California: Project Innovation, Spring 1970.

Chiu, A. A preliminary evaluation of a computer assist counseling program for delinquent youth. Unpublished Masters thesis, University of Wisconsin, Milwaukee, 1969.

4-12 Cassel, R. Critical stages in man's ego-ideal or conscience development. Psychology, 1970, 7(3), 15-25.

The author describes a series of sequential stages for the development of man's ego-ideal or conscience. Emphasis in the approach is placed on congruence between the individual and society, in terms of the resolution of social day-to-day problems, and in relation to what constitutes an ideal response for such problems. The procedure entails computer assist counseling (COASCON). (PA- Vol. 45, # 04214)

Related Reference:

Cassel, R. Computer assist counseling for development of cultural compatible ego-ideal imagery for disadvantaged. Psychology in the Schools, 1969, 6(3), 289-291.

4-13 Cassel, R. Systems analysis approach to computer-based counseling (SCNROCO) for addiction treatment. International Journal of Addictions, 1971, 6(3), 493-495.

The system described by the author simulates social problems where dangerous drug use is involved. SCNROCO helps the individual to develop competency in personal decision-making so that he will recognize the hazards in various choices and be able to recognize the likely consequences of his various alternatives.

4-14 Cassel, R. DEDEV--The computerized decision development system. Psychology, 1972, 9(3), 40-45.

This system is designed to improve the decision-making ability competency of the user. It combines use of the computer with other media. A description

of the system is presented in this article.

Related References:

Cassel, R., & Stroman, S. Evaluation of the computerized decision development system (DEDEV) for use with ROTC students. The Journal of Instructional Psychology, 1974, 1(1).

Cassel, R. The Computerized Decision Development System (DEDEV). Jacksonville, Illinois: Psychologists and Educators, Inc., 1973.

4-15 Cassel, R., Atwood, J., & Lie, A. The computerized human relations program HUMRELAT. College Student Personnel Monograph, 1973, 7(2).

The computer is used for gaming and simulation in the design of a human relations program.

4-16 Dupree, D., & Kapp, J. A student counseling and information management system. AEDS Monitor, 1973, 12(4), 5-7.

The authors present a discussion of the development of a computer-based information system which allows flexible, simple student record maintenance for administrative use, while directly interfacing with the student advising process. (ERIC-EJ 087 910)

4-17 Equi, P., & Donnan, H. A system for computer dissemination of occupational information. School Counselor, 1972, 19(4), 271-274.

The authors discuss an automated system for organizing, updating, storing, and presenting job information from the Dictionary of Occupational Titles for use by students. Based on interest and aptitude measures, the computer screens occupations and then allows the student to ask for more information about those in which he is interested.

4-18 Finney, J. Computer assistance for counselors in schools and colleges. Education, 1971, 92(1), 66-67.

This article describes a computer-support system for counselors. The computer is used to assemble and report information from component parts of personality tests.

4-19 Gingerich, G. School-based job placement service model: Phase I, Planning. Final report. Brownstone, Pennsylvania: Brownstone Area Vocational-Technical School, June 30, 1972.

This handbook concerns the development of a job placement service system. It describes the model, implementation strategies, securing information about students' characteristics and job requirements, developing a computerized career planning and job matching system and method for evaluating the system.

See Also: ERIC-ED 069 887)

4-20 Hecht, A., & Willer, L. Using a data bank for local career program planning and counseling. Educational Technology, 1974, 14(4), 33-36.

The computer is used as a data bank to help the counselor in providing data on manpower needs and job functions.

4-21 Holcomb, J. Keysort: Another application in campus data processing. Journal of College Placement, 1970, 30(4), 55-60.

The Duquesne University Placement Office has developed a method whereby information about students is matched with job opportunities. The method has implications for institutions with modest funds which can use less complex information retrieval techniques to aid in counseling and placement of college students.

4-22 Irwin, T. The use in counseling and research of a computer program which gives an item analysis of the Edwards Personal Preference Schedule. Paper presented at the American Personnel and Guidance Association Convention, Detroit, April 7-11, 1968.

The program briefly described in this paper represents an attempt to have the computer provide the counselor with a descriptive item interpretation of the Edwards Personal Preference Schedule. (ERIC-ED 022 209)

4-23 Juola, A., Wineburne, J., & Whitmore, A. Computer-assisted academic advising. Personnel and Guidance Journal, 1968, 47, 146-150.

A computer-assisted program in academic advising for probation students is described and evaluated. The findings suggest that improvement in academic status can be secured by judicious procedures in course selection and enrollment. The paper demonstrates how the computer can be used to

help select students who are in need of specific individual contact because of questionable enrollments and, at the same time, provides data which make individual interviews more productive.
(Abstract from the Personnel and Guidance Journal)

4-24 Martin, A. A multimedia approach to communicating occupational information to noncollege youth. Technical report. Pittsburgh, Pennsylvania: University of Pittsburgh, 1967.

Unavailable for review.

4-25 Meyer, D. Yes, we have computer-assisted counseling. Paper presented at the convention of the National Association of Student Personnel Administrators, Denver, April 10, 1972.

A description of a decentralized counseling service which utilizes a computer for storing all demographic, transcript, course, and program information.

See Also: ERIC-ED 088 536)

4-26 Miller, G. Quicken the pace of student exploration. Agricultural Education Magazine, 1973, 46(1), 17.

This article describes the Yavapai County Career Education Project. A computer terminal connected with Yavapai College provides information for the user on 1) occupations; 2) junior college information; 3) four year colleges; and 4) scholarships.

4-27 Moorhouse, W. Computer information systems: A new tool in guidance? In W. Moorhouse, (Ed.). Implications of new technology for counselor education: A committee report. Washington, D.C.: Association for Counselor Education and Supervision, 1969.

Unavailable for review.

4-28 Myers, R. The role of the computer in guidance in the year 2000. Paper presented at the CVIS Users Symposium, Oakbrook, Illinois, May 11, 1973.

After discussing some of the progress that has been made in computer-assisted counseling and guidance over the last ten years, the author describes how systems of the future will differ.

4-29 Pierson, G. Computer-assisted personality analysis (CAPA) and simulation (CAPS). Journal of Multivariate Experimental Personality and Clinical Psychology, 1973, 1(1), 31-37.

The development of technology designed to simulate hypothetical personality structures and to predict specific behaviors as a consequence of personality and situational interactions is discussed. This device should be useful in theoretical psychology to pose questions of the "What would happen if...?" variety. The program can also evaluate a different kind of question, i.e., "Given the present personality structure of an individual, as a set of dependent variates, what might one predict his behavior to be if...?" Examples are given of the use of the personality simulator in counseling a male undergraduate. Some potential uses are suggested. (PA-Vol. 52, # 00990)

4-30 Prediger, D., & Fought, L. Local test validation and use of results. Measurement and Evaluation in Guidance, 1972, 5(2), 336-372.

This article presents the experience of an area vocational school to illustrate how counselors, with the help of a computer, can obtain locally validated test information useful in vocational counseling. Data from more than 2,500 students were used to determine the relevance of the school's tests for vocational program choice, the Penta-County Vocational Test Battery. Conversion of test scores to counseling information was accomplished via similarity (contour) scores based on discriminant analysis and experience tables based on regression analyses. Interpretive reports were developed to help prospective vocational school students explore the 24 program options available to them at the area vocational school. Examples of the interpretive reports and their use are provided. (PA- Vol. 49, #10028)

Related Reference:

Prediger, D. Converting test data to counseling information: system trial--with feedback. Journal of Educational Measurement, 1971, 8(3), 161-169.

4-31 Prediger, D. Validation of counseling selection data for vocational school students. Final report. Toledo, Ohio: University of Toledo, 1970.

The purpose of this system is to stimulate and facilitate exploratory behavior. The author describes data-information conversion procedures which create similarity scores and success estimates for each student. It answers the question, how do students in respective vocational programs differ? The system is restricted to data collection and analysis, as a guide for the counselor. Aptitude and interest tests were found to be more helpful than personality tests in differentiating students.

See Also: ERIC-ED 045 831

4-32 Roberts, T. The changing face of contemporary counseling practice. Educational Technology, 1971, 11(12), 27-28.

A computer support system for school guidance and counseling programs is described. The author cites the following benefits of using the system: 1) instant information to support the interview; 2) rapid diagnostic capability; 3) a gamed instruction program which provides support in vocational and career development; and 4) synthetic confrontation therapy dialogue for students who prefer to have a non-human entity listen to their personal problems.

4-33 Sankey, G. Computer-assisted occupational exploration. Saskatchewan Journal of Educational Research and Development, 1971, 1(2), 9-14.

Unavailable for review.

4-34 Silver, G. The computer as a diagnostic aid in a city college. Journal of Educational Data Processing, 1971, 8(2-3), 1-7.

A system being used at Los Angeles City College provides a letter to each student communicating his or her progress in a college course.

4-35 Smith, T. Development of a research-based and computer-assisted guidance program. California Personnel and Guidance Association Journal, 1969-1970, 2(2), 27-32.

Unavailable for review.

4-36 Super, D. Computers and counselor roles: Counselor acceptance of systems in guidance and eventual functions of counselors. Paper presented at the Symposium on the Use of Computers in Counseling and Guidance, National Vocational Guidance Association, Detroit, April 1968.

Acceptance by the counselor of the use of computers in counseling is contingent on his becoming familiar with the system and involved in its use. The most likely sources of resistance stem from 1) computer complexity and counselor orientation; 2) computer accuracy and counselor fallibility; 3) specification of the counselor agenda; and 4) the appearance of determinism. The author believes that this resistance can be overcome to the benefit of counselor and client alike. He perceives the eventual function of the computer as that of a source of data while the counselor will continue to listen, reflect and act.

post high school goals.

4-42 Tondow, M. Computer diagnostics. Paper presented at the American Educational Research Association Convention, Minneapolis, March 2-6, 1970.

The report deals with the influence of computer technology on education, particularly guidance. The need for computers is a result of increasing complexity which is defined as: 1) an exponential increase of information; 2) an exponential increase in dissemination capabilities; and 3) an accelerating curve of change. Listed are five functions of the computer in guidance: 1) data gathering; 2) storage; 3) manipulation; 4) retrieval; and 5) dissemination. Computer technology and information is extremely useful for good decision-making. Computer-based counseling gives equal treatment to all students and eliminates the student's need for role playing (usually necessary when interacting with people of importance, such as counselors). However, the system does not fulfill all the student's needs and institutional guidance will remain. Therefore, the document implies that new skills will be required of the guidance specialist which in turn necessitates changes in counselor training programs. (ERIC-ED 042 226)

4-43 Vriend, J. A fully equipped computer-assested group counseling research and training lab. Educational Technology, 1973, 13(2), 57-60.

An imaginary fully-equipped group counseling training and research laboratory is pictured. There are group counseling training labs which incorporate some of the features of the model shown, but a lab does not exist that has them all. In particular, no such training facility has harnessed the computer in the fashion herein illustrated. (PA- Vol. 50, #06929)

4-44 Wightman, L. What computer can do now. Paper presented at the New England Educational Research Organization Conference, Boston, June 4-5, 1970; and at the Massachusetts School Counselors Association Conference, 1970.

This paper concerns the use of the computer in schools. Several specific operational computer applications useful to counselors are discussed. These are: 1) the Ventura, which is the most comprehensive system; 2) the services available from NEEDS; 3) course selection; 4) updating information; and 5) making decisions, particularly occupational choices. Computer-assisted guidance and counseling supports and supplements what the counselor does. However, some problems may arise due to the use of computers: 1) impersonal feelings; 2) high cost; 3) the system needs to be tailor made for each local area; and 4) the negative attitudes

4-37 Super, D. What technology can do for guidance. In G. Walz, R. Smith, & A. Benjamin, (Eds.). A comprehensive view of career development. Washington, D.C.: American Personnel and Guidance Association Press, 1974.

Counselors have no choice but to learn how to use the services of computers in guidance. The hardware, software, data bases, and scripts are described along with potential uses. Three actual systems are described. Results of evaluative studies showing computers can enhance counselor effectiveness are cited.

4-38 Super, D. Computers in support of vocational development and counseling. In H. Borow, (Ed.). Career guidance for a new age. Boston: Houghton Mifflin, 1973.

Major types of applications to manpower decisions and career guidance are classified and described. Current systems, strengths and limitations, and problems to be accommodated are discussed.

4-39 Thrasher, C., Campbell, J., & Bennett, G. Computer-aided education management: An integrated records and counseling system. Journal of Educational Data Processing, 1971, 8(4), 1-10.

Given the constant constraint on resources in the university setting, use of a computer to relieve some of the burden is suggested. The authors describe how this is being done at the School of Management, State University of New York at Buffalo. There are two parts to the system: 1) Undergraduate Management Information Program, "is a simplified data base with report-generations capability"; 2) Computer-Aided Counseling Program, "makes a comprehensive analysis of the student's academic record and provides him and the appropriate adviser with an accurate statement of the student's current academic standing. This statement includes course work completed and outstanding degree requirements for graduation, as well as capability for specialized one-time information interrogations."

4-40 Tiedeman, D. Accommodating computers into the technology of guidance. Counselor Notebook, 1970, 7(3).

Unavailable for review.

4-41 Tondow, M. System analysis and innovation. Journal of Secondary Education, 1967, 42(6).

This article describes a systems approach to education using the computer to simulate the counseling process in order to stimulate students to explore

of teachers toward such technology in education. (ERIC-ED 042 205)

4-45 Zagorski, H. Automatic data processing system and procedures: Computerized Academic Counseling System. United States AFHRL Technical Report, 1973, No. TR-73-6.

This document reviews and analyzes the Computerized Academic Counseling System (CACS) constructed to assist counselors in guiding undergraduate college students toward the selection of optimal academic majors. Problem review and definition, system analysis, design rationale, methodological approach, measurement specifications, data base, compilation, mathematical modeling, statistical results, and potential are described.

See Also: ERIC-ED 083 806)